

## REMARKS

Reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks is respectfully requested.

By this Amendment, claims 1-8 and 22 are amended and new claims 24-25 are added. Accordingly, claims 1-25 are pending in this application. Because new claims 24-25 are dependent claims 6 and 10 rewritten in independent form, no new matter is presented in this Amendment.

Applicants gratefully acknowledge the indication that claims 6-21 contain allowable subject matter. As presented above, new claims 24 and 25 are claims 6 and 10 rewritten in independent form. Accordingly, claims 24 and 25 are allowable.

In response to the rejection of claims 1-5 and 22-23 under 35 U.S.C. 103(a) as being unpatentable over *Sudo* (US 6,345,036) in view of *Jalali* (US 2003/0095506), the claims are amended to more clearly recite the claimed subject matter and are believed to be patentable for the reasons discussed below.

As amended, claim 1 recites a modulation method for each subchannel based on channel gain, that includes allocating an optimal number of bits to be transmitted to a subchannel according to the channel gain, wherein the optimal number of bits is determined in order to obtain minimum power for a total transmission rate; and allocating the determined optimal number of bits to be transmitted for the subchannel.

A rejection based on 35 U.S.C. §102 requires every element of the claim to be included in the reference, either directly or inherently. Applicants respectfully submit that the asserted combination of *Sudo* and *Jalali* fails to disclose at least the above recited method of amended claim 1.

Specifically, Applicants respectfully submit that neither *Sudo* nor *Jalali* discloses:

determining an optimal number of bits to obtain minimum power for a total transmission rate according to the determined optimum number of bits; and

allocating a final number of bits to be transmitted for the subchannel according to the optimal number of bits. (Emphasis added)

*Sudo* appears to only disclose calculating a coefficient signal for each subcarrier and multipliers to multiply transmitting signals of subcarriers to maintain consistently maintain constant the power between the subcarriers at a reception time (*see* Abstract). At column 10, lines 34-40, cited in the Office Action as relevant to method of claim 1, *Sudo* appears to only disclose changing the amplitude of the output signal and fails to disclose allocating a number of bits according to a subchannel quality.

*Jalali* likewise fails to remedy the deficiencies of *Sudo*, and appears to only disclose rate selection and multiple modulation methods (*see* Abstract), and fails to disclose, teach, or suggest determining an optimum number of bits, as recited in claim 1.

Applicants respectfully submit that independent claim 1 is patentable at least due to the failure of *Sudo* in view of *Jalali* to disclose, teach or motivate all recited features of claim 1. Claims 2-23 depend from this independent claim and are likewise patentable over the asserted combination of references for at least their dependence on an allowable base claim, as well as for the additional features they recite. Accordingly, withdrawal of this rejection is respectfully requested.

All objections and rejections having been addressed, it is respectfully submitted that the present application should be in condition for allowance and a Notice to that effect is earnestly solicited. Early issuance of a Notice of Allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicants' attorney of record, to facilitate advancement of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,  
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